

IN THE CLAIMS

Please add the following claims without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents.

- 1-20. (Cancelled)
21. (Previously added) An isolated DNA molecule comprising a nucleotide sequence encoding a plant amino acid transporter for membrane transport.
22. (Previously added) A plasmid comprising the isolated DNA molecule of claim 21.
23. (Previously added) A method for producing a transformed host cell comprising transforming the cell to comprise the isolated DNA molecule of claim 21.
24. (Previously added) A method for producing a transformed host cell comprising transforming the cell to comprise the plasmid of claim 22.
25. (Previously added) A transgenic plant transformed to contain the isolated DNA molecule of claim 21 and comprising an altered amount of amino acid transporter activity relative to a non-transformed plant.
26. (Previously added) A transgenic plant comprising cells comprising the isolated DNA molecule of claim 21.
27. (Previously added) A bacterium comprising the isolated DNA molecule of claim 21.
28. (Previously added) A bacterium comprising the plasmid of claim 22.
- 29-30. (Withdrawn)
31. (Previously added) The plasmid of claim 22 further comprising a promoter operably linked to the isolated DNA molecule.
32. (Previously added) The plasmid of claim 22 further comprising a transcriptional termination sequence operably linked to the isolated DNA molecule.
33. (Previously added) The plasmid of claim 31 further comprising a transcriptional termination sequence operably linked to the isolated DNA molecule.
34. (Previously added) The plasmid of claim 22 wherein the isolated DNA molecule is in the sense orientation.
35. (Previously added) The plasmid of claim 22 wherein the isolated DNA molecule is in the anti-sense orientation.

36. (Previously added) A method for producing a host cell capable of an increased amount of an amino acid transporter relative to a non-transformed cell comprising transforming the cell with the plasmid of claim 34.

37. (Previously added) A method for producing a host cell capable of a decreased amount of an amino acid transporter relative to a non-transformed cell comprising transforming the cell with the plasmid of claim 35.

38. (Previously added) A yeast strain comprising the isolated DNA molecule of claim 21.

39. (Previously added) A method for altering the transport of metabolites in a host cell comprising transforming the cell so as to comprise the isolated DNA molecule of claim 21.

40. (Previously added) A cell obtainable from the method of claim 23.

41. (Previously added) A cell obtainable from the method of claim 24.

42. (Previously added) A cell obtainable from the method of claim 36.

43. (Previously added) A cell obtainable from the method of claim 37.

44. (Previously added) A cell obtainable from the method of claim 39.

45. (Previously added) A transgenic plant comprising an altered amount of amino acid transporter activity by comprising a number of copies of the isolated DNA molecule of claim 21.

46. (Previously added) A method for producing a plant comprising transforming plant cells to comprise the isolated DNA molecule of claim 21, and regenerating a transformed plant from the plant cells.

47. (Previously added) The method of claim 46 wherein the isolated DNA molecule is in the anti-sense orientation and the transformed plant has a decreased amount of amino acid transporter relative to a non-transformed plant.

48. (Previously added) The method of claim 46 wherein the isolated DNA molecule is in the sense orientation and the transformed plant has an increased amount of amino acid transporter relative to a non-transformed plant.

49. (Previously added) A plant obtainable from the method of claim 46.

50. (Previously added) A plant obtainable from the method of claim 47.

51. (Previously added) A plant obtainable from the method of claim 48.

52. (Previously added) An isolated DNA molecule comprising a nucleotide sequence encoding a plant amino acid transporter for membrane transport which complements a yeast peptide transport mutation.

53. (Previously added) The isolated DNA molecule of claim 52 wherein the yeast has a proline transport mutation or a histidine synthesis and transport mutation.

54. (Previously added) The isolated DNA molecule of claim 53 wherein the yeast is strain 22574d or JT16.

55. (Previously added) A first isolated DNA molecule comprising a nucleotide sequence encoding a plant amino acid transporter for membrane transport which hybridizes to a second isolated DNA molecule consisting of the coding region of SEQ ID NO:1.

56. (Previously added) A first isolated DNA molecule comprising a nucleotide sequence encoding a plant amino acid transporter for membrane transport which hybridizes to a second isolated DNA molecule consisting of the coding region of SEQ ID NO:3.

57. (Previously added) A first isolated DNA molecule comprising a nucleotide sequence encoding a plant amino acid transporter for membrane transport which hybridizes to a second isolated DNA molecule encoding an amino acid sequence as shown in SEQ ID NO:2.

58. (Previously added) A first isolated DNA molecule comprising a nucleotide sequence encoding a plant amino acid transporter for membrane transport which hybridizes to a second isolated DNA molecule encoding an amino acid sequence as shown in SEQ ID NO:4.

59. (New) An isolated DNA molecule encoding a protein with the function of a plant amino acid transporter, selected from the group consisting of:

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- (a) a DNA molecule encoding a protein comprising the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4;
 - (b) a DNA molecule comprising the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3;
 - (c) a DNA molecule which hybridizes under stringent conditions with one of the DNA molecules mentioned under (a) or (b) or is complementary thereto; and
 - (d) a DNA molecule whose nucleotide sequence deviates from the sequence of the DNA molecule mentioned under (a), (b) or (c) owing to the degeneracy of the genetic code.

60. (New) A plasmid comprising the isolated DNA molecule of claim 59.

61. (New) A method for producing a transformed host cell comprising transforming the cell to comprise the isolated DNA molecule of claim 59.
62. (New) A transgenic plant transformed to contain the isolated DNA molecule of claim 59 and comprising an altered amount of amino acid transporter activity relative to a non-transformed plant.
63. (New) A transgenic plant comprising a cell, wherein the cell comprises the isolated DNA molecule of claim 59.
64. (New) A bacterium comprising the isolated DNA molecule of claim 59.
65. (New) A bacterium comprising the plasmid of claim 60.
66. (New) The plasmid of claim 60 further comprising a promoter operably linked to the isolated DNA molecule.
67. (New) The plasmid of claim 60 further comprising a transcriptional termination sequence operably linked to the isolated DNA molecule.
68. (New) The plasmid of claim 66 further comprising a transcriptional termination sequence operably linked to the isolated DNA molecule.
69. (New) The plasmid of claim 60 wherein the isolated DNA molecule is in the sense orientation.
70. (New) The plasmid of claim 60 wherein the isolated DNA molecule is in the anti-sense orientation.
71. (New) A method for producing a host cell capable of an increased amount of an amino acid transporter relative to a non-transformed cell comprising transforming the cell with the plasmid of claim 69.
72. (New) A method for producing a host cell capable of a decreased amount of an amino acid transporter relative to a non-transformed cell comprising transforming the cell with the plasmid of claim 70.
73. (New) A yeast strain comprising the isolated DNA molecule of claim 59.
74. (New) A method for altering the transport of metabolites in a host cell comprising transforming the cell so as to comprise the isolated DNA molecule of claim 59.
75. (New) A cell obtainable from the method of claim 61.
76. (New) A cell obtainable from the method of claim 71.
77. (New) A cell obtainable from the method of claim 72.

78. (New) A cell obtainable from the method of claim 74.
79. (New) A transgenic plant comprising an altered amount of amino acid transporter activity by comprising a number of copies of the isolated DNA molecule of claim 59.
80. (New) A method for producing a plant comprising:
- (a) transforming plant cells to comprise the isolated DNA molecule of claim 59; and
 - (b) regenerating a transformed plant from the plant cells.
81. (New) The method of claim 80, wherein the isolated DNA molecule is in the anti-sense orientation and the transformed plant has a decreased amount of amino acid transporter relative to a non-transformed plant.
82. (New) The method of claim 80, wherein the isolated DNA molecule is in the sense orientation and the transformed plant has an increased amount of amino acid transporter relative to a non-transformed plant.
83. (New) A plant obtainable from the method of claim 80.
84. (New) A method for identifying a nucleic acid molecule encoding a plant amino acid transporter comprising complementing a yeast proline transport mutation with a plant cDNA by transforming the yeast with the plant cDNA, propagating the yeast in the presence of proline, and isolating the plant cDNA from the yeast, thereby identifying the nucleic acid molecule encoding the plant amino acid transporter.
85. (New) A method for identifying a nucleic acid molecule encoding a plant amino acid transporter comprising complementing a yeast histidine synthesis and transport mutation with a plant cDNA by transforming the yeast with the plant cDNA, propagating the yeast in the presence of proline, and isolating the plant cDNA from the yeast, thereby identifying the nucleic acid molecule encoding the plant amino acid transporter.
86. (New) An isolated DNA molecule comprising a nucleotide sequence encoding a plant proline transporter for membrane transport obtained by the method of claim 84.
87. (New) An isolated DNA molecule comprising a nucleotide sequence encoding a plant histidine synthesis and transporter protein for membrane transport obtained by the method of claim 85.
88. (New) An isolated DNA molecule comprising a nucleotide sequence encoding a plant proline transporter or histidine synthesis and transporter protein for membrane transport.